In this third edition Wright continues to increase his selection of references from among the multitude of recently reported works, although at times he, unfortunately, credits the wrong authors and overcredits others. He correctly resists an urge to include, prematurely, a discussion of "degree of metamerism" which, although extremely important in color evaluation, has not yet been firmly resolved. The inclusion of an enlarged treatment on colorimetry applications to color television may be considered superfluous by American readers who have enjoyed color telecasts for about a decade. The largest of the new additions is the discussion of the "10° co-ordinate functions" that consist of three color-matching functions derived from the data of Stiles and of Speranskaya which the CIE Colorimetry Committee recommended for adoption in 1963. Had release of the book been delayed one month the statement, "This system has still to be officially approved," would not have been needed.

I regret that important inadequacies in the earlier edition have not been corrected and that the author continues to ignore the most important development in colorimetry: its consideration as part of metrology, with principles of limitations and uncertainties in measurement processes. Exclusion of this concept was excusable in the 1958 edition when relatively little was applied to colorimetry, but continued omission in 1964, when much has been accomplished, detracts materially from the utility of the third edition.

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Education and Manpower

Education, Manpower, and Economic Growth: Strategies of Human Resource Development. Frederick Harbison and Charles A. Myers. McGraw-Hill, New York, 1964. xiii + 229 pp. $7.50.

The authors set themselves a large task: to describe the procedures that could be used by any country in planning the educational and manpower development policies that will best contribute to economic growth. Few people could write such a book, but these authors have had extensive experience in other countries and they had access to a number of unpublished and sometimes confidential studies to supplement the varied and inadequate records that are generally available. The book they have produced will be of interest to educational and economic planners, and simply must be studied closely by anyone with responsibility for manpower planning.

The authors start by dividing most of the countries of the world into four levels of development: 17 underdeveloped, 21 partially developed, 21 semiadvanced, and 16 advanced. Because the most desirable indices are not available, and after trying out several alternatives, they based this classification on a simple index consisting of the sum of the percentage of the 15- to 19-year-old age group enrolled in secondary school (adjusted for length of the secondary school) and five times the percentage of the appropriate age group enrolled in higher education. The resulting rankings correlate well with economic measures, .89 with GNP per capita and −.81 with the percentage of the active population engaged in agriculture, but lead to some anomalies—for example, Argentina is listed as an advanced country and Norway as a semiadvanced one.

The next step was to describe the typical country of each level in terms of its economy, educational system, training opportunities, and stage and quality of human resource development. Then follows the strategy the authors propose for such a country. Their recommendations cover economic planning, on-the-job training, the use of expatriates, and the use of pay differentials and other incentives, as well as changes in the formal educational system. An illustration of the differing recommendations at the four levels is given by the following proposals for first-priority changes in formal education:

1) For underdeveloped countries, expansion of secondary education.

2) For partially developed countries, expansion of free or public secondary education and reform of the curriculum.

3) For semiadvanced countries, a shift in emphasis at college level from law and the humanities to science and technology.

4) For advanced countries, improvement in quality of higher education and postgraduate education.

How well these and other recommendations can be carried out will depend upon political pressures, national values, economic resources, the wisdom of the leaders, and the kind and quality of information available for detailed planning. The closing chapters discuss methods of selecting targets and formulating specific plans for an individual country.

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Mathematics

Linear Algebra. Paul C. Shields. Addison-Wesley, Reading, Mass., 1964. xii + 288 pp. Illus. $7.50.

Linear algebra is usually approached through one of two viewpoints—matrices or linear transformations. Roughly speaking the approach through matrices is more algebraic in character, and the approach through linear transformations is more geometric. This book leans toward the geometric in its orientation. The author's purpose is to bridge the gap between elementary and advanced calculus by providing a basis for discussion in multidimensional calculus. Thus, there is considerable emphasis on linear dependence and independence, inner products, and linear operators, especially linear operators with a diagonal matrix representation; on the other hand a secondary role is given to linear programming, convex geometry, quadratic forms, and group theory.

Shields approaches his subject in a gradual way; the presentation of elementary material is followed by concepts and generalization. The book is an attempt to reveal the inner workings of the subject, with a minimum of formalization. This leads to definition by illustration once or twice (the Gram-Schmidt process on p. 125, for example), but this is a minor flaw. At many points there are paragraphs labeled "Remarks" in which the author comments on related ideas, extensions of the theory, and computational methods. At the ends of the chapters notes are provided in which other sources are cited and other approaches are outlined for the benefit of the reader.

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